

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2000-098799

(43)Date of publication of application : 07.04.2000

(51)Int.Cl.

G03G 15/20

G03G 21/00

(21)Application number : 10-271560

(71)Applicant : RICOH CO LTD

(22)Date of filing : 25.09.1998

(72)Inventor : IWATA ATSUTAKA

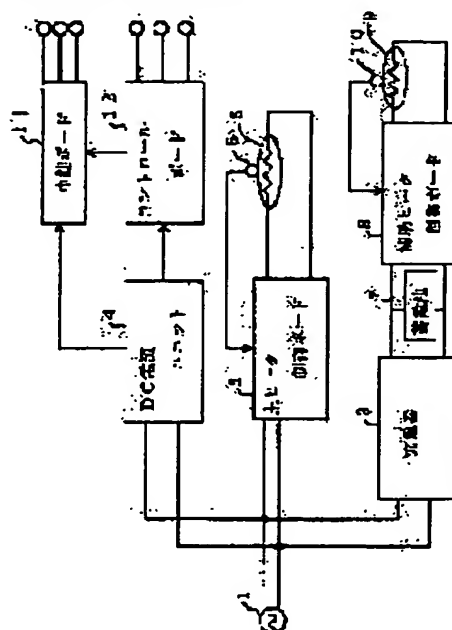
(54) HEATING DEVICE FOR FIXING DEVICE AND IMAGE FORMING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a heating device for a fixing device and an image forming device by which paper is successively passed without having an interruption by shortening warm-up time.

SOLUTION: As for the heating device wherein heat is generated for the fixing device by being supplied with electric power and a heater driving means supplying the heater with the electric power, the heater driving means is provided with a rechargeable battery 7 and a charger 3 supplied with power by a commercial power source 1 to charge the battery 7. The heater is provided with a main supplied with the electric power from the commercial power source 1 and an auxiliary heater 9 supplied with the electric power by the battery 7.

Charging of the battery 7 is executed when the main heater 5 is turned off.



LEGAL STATUS

[Date of request for examination]

09.06.2003

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Best Available Copy

2005年 7月 5日 11時27分

Searching

株式会社リコー新横浜第2知財部

NO. 4691 P. 9
2/2 ページ

Copyright (C); 1998,2003 Japan Patent Office

*** NOTICES ***

JPO and NCIPJ are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. *** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] In the heating apparatus for anchorage devices which has the heater which generates heat by receiving supply of power, and the heater driving means which supplies power to this heater the above-mentioned heater driving means The main heater at which it has the battery which can be charged, and the battery charger for which electric power is supplied from a source power supply, and which charges said battery, and said heater receives supply of power from a source power supply, Heating apparatus for anchorage devices characterized by having the space heater which receives supply of power from said battery, and charging said battery at the time of putting out lights of said main heater.

[Claim 2] In the heating apparatus for anchorage devices which has the heater which generates heat by receiving supply of power, and the heater driving means which supplies power to this heater the above-mentioned heater driving means The battery which can be charged, and the battery charger for which electric power is supplied from a source power supply and which charges said battery, The main heater at which it has a current value detection means to detect the current which flows from a source power supply, and said heater receives supply of power from a source power supply, Heating apparatus for anchorage devices characterized by controlling so that the current value as which it has the space heater which receives supply of power from said battery, and said current value detection means detected charge of said battery does not exceed a predetermined value.

[Claim 3] Image formation equipment characterized by having the heating apparatus for anchorage devices according to claim 1 or 2.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the heating apparatus for anchorage devices, and image formation equipment.

[0002]

[Description of the Prior Art] Conventionally, the heating apparatus for anchorage devices is mainly used for the printer or the copying machine. In image formation equipment called such a printer and a copying machine, the maximum consumed electric current and maximum electric power consumption are usually determined. For this reason, with this image formation equipment, warm-up time is determined based on the power consumption of the heater in the heating apparatus for anchorage devices. Moreover, the heat of an anchorage device was remarkably taken by paper by continuation **** of an anchorage device etc., when it became impossible to have held the temperature of an anchorage device to predetermined temperature, continuation **** was temporarily interrupted for this image formation equipment, and after heating the anchorage device to predetermined temperature, the control means which performs control of resuming continuation **** again was adopted.

[0003] Moreover, the heating apparatus for anchorage devices aiming at compaction of warm-up time is indicated by by arranging in either of the topologies which form a discharge circuit in JP,3-36579A with a topology which forms a battery charger and a charge circuit for a battery or a heater, and DC power supply switchable.

[0004]

[Problem(s) to be Solved by the Invention] Although warm-up time does not become short enough but continuation **** of an anchorage device may be interrupted for the above-mentioned conventional image formation equipment, in order to use it for convenience more, continuation **** without compaction of warm-up time and interruption is demanded.

[0005] This invention was made in order to fill the above-mentioned want, and it aims at offering the heating apparatus for anchorage devices and image formation equipment which can aim at compaction of warm-up time and can perform continuation **** without interruption.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned object, invention concerning claim 1 In the heating apparatus for anchorage devices which has the heater which generates heat by receiving supply of power, and the heater driving means which supplies power to this heater the above-mentioned heater driving means It has the battery which can be charged, and the battery charger for which electric power is supplied from a source power supply and which charges said battery, and said heater has the main heater which receives supply of power from a source power supply, and the space heater which receives supply of power from said battery, and charges said battery at the time of putting out lights of said main heater.

[0007] In the heating apparatus for anchorage devices which has the heater which generates heat when invention concerning claim 2 receives supply of power, and the heater driving means which supplies power to this heater The battery which can charge the above-mentioned heater driving means, and the battery charger for which electric power is supplied from a source power

supply and which charges said battery, The main heater at which it has a current value detection means to detect the current which flows from a source power supply, and said heater receives supply of power from a source power supply, It has the space heater which receives supply of power from said battery, and it controls so that the current value as which said current value detection means detected charge of said battery does not exceed a predetermined value.

[0008] Invention concerning claim 3 is equipped with the heating apparatus for anchorage devices according to claim 1 or 2.

[0009]

[Embodiment of the Invention] Drawing 1 shows a part of 1 operation gestalt of this invention. This operation gestalt is an operation gestalt which applied invention concerning claims 1 and 3 to image formation equipments, such as a copying machine which the toner image as an image is formed [copying machine] in the record paper, and fixes this toner image to the recording paper with an anchorage device, or a printer.

[0010] In this operation gestalt, the main heater control board 2, the battery charger 3, and the DC power supply unit 4 as a main heater control means are connected to a source power supply 1, and the main heater 5 and the temperature sensor 6 for the main heaters are connected to the main heater control board 2. A battery 7 and the space heater control board 8 as a space heater control means are connected to a battery charger 3 at juxtaposition, and the space heater 9 and the temperature sensor 10 for space heaters are connected to the space heater control board 8.

[0011] An extension board 11 and the control board 12 as a control means are connected to the DC power supply unit 4, and the motor in this image formation equipment, a clutch, a solenoid, various sensors, etc. are connected to the extension board 11 and the control board 12. The actuator and the various sensors which consist of these motors and clutches, and a solenoid are controlled by the control signal from the control board 12. Thus, the heater driving means which this operation gestalt supplies power to the heater which consists of the main heater 5 and a space heater 9, and is made to generate heat is equipped with the battery 7 which can be charged, and the battery charger 3 for which electric power is supplied from a source power supply 1 and which charges a battery 7.

[0012] The DC power supply unit 4 changes into predetermined direct current voltage the alternating voltage supplied from a source power supply 1, and impresses it to an extension board 11 and the control board 12. The main heater 5 generates heat by supplying power through the main heater control board 2 from a source power supply 1, and when an anchorage device is a heat roller anchorage device which has a fixing roller, the main heater 5 heats a fixing roller. The temperature sensor 6 for the main heaters detects whenever [whenever / stoving temperature / at the main heater 5], i.e., the skin temperature of a fixing roller, (fixation temperature). The main heater control board 2 controls the supply voltage from a source power supply 1 to the main heater 5, and makes the main heater 5 turn on / turn off so that the skin temperature (fixation temperature) of a fixing roller may turn into laying temperature based on the temperature detection signal from the temperature sensor 6 for the main heaters.

[0013] The main heater control board 2 is constituted so that a battery-charger driving signal may be outputted to a battery charger 3 at the time of putting out lights of the main heater 5. When the main heater 5 and the DC power supply unit 4 drive by full power, this operation gestalt is designed so that the consumed electric current or power consumption of this operation gestalt may turn into the maximum consumed electric current or maximum electric power consumption. Therefore, at the time of putting out lights of the main heater 5, since it is generous to the maximum consumed electric current or maximum electric power consumption, as for the consumed electric current or power consumption of this operation gestalt, the main heater control board 2 outputs a battery-charger driving signal to a battery charger 3 at the time of putting out lights of the main heater 5, and a battery charger 3 charges a battery 7 by inputting a battery-charger driving signal from the main heater control board 2.

[0014] A space heater 9 generates heat by supplying power through the space heater control board 8 from a battery 7, and a space heater 9 heats a fixing roller. The temperature sensor 10 for space heaters detects whenever [stoving temperature / of the fixing roller by the space

heater 9] (temperature of the fixing roller heated at a space heater 9 and the main heater 5).

[0015] The space heater control board 8 is judging whether the main heater 5 being in a condition without burning ***** beyond fixed time amount based on the temperature detection signal from the temperature sensor 10 for space heaters, or the main heater-on / off signal from the main heater control board 2. Judge whether a space heater 9 is made to turn on, and when the main heater 5 is in a condition without burning ***** beyond fixed time amount, a space heater 9 is made to turn on. or It judges whether a space heater 9 is made to turn on by judging whether the output value of the temperature sensor 6 for the main heaters is separated from desired value more than constant value in the direction where temperature is low. When the output value of the temperature sensor 6 for the main heaters is separated from desired value more than constant value in the direction where temperature is low, a space heater 9 is made to turn on.

[0016] If it is made such a configuration, the power stored in the battery 7 at the time of the warm up which needs heat for a large quantity in this operation gestalt, and continuation **** of an anchorage device etc. can be supplied to a space heater 9, and the consumed electric current or power consumption of this operation gestalt will not exceed the maximum consumed electric current or maximum electric power consumption further at this time.

[0017] In the heating apparatus for anchorage devices which has the heater which generates heat when the heating apparatus for anchorage devices of this operation gestalt receives supply of power, and the heater driving means which supplies power to this heater The main heater 5 at which the above-mentioned heater driving means is equipped with the battery 7 which can be charged, and the battery charger 3 for which electric power is supplied from a source power supply 1, and which charges said battery 7, and said heater receives supply of power from a source power supply 1, Since it has the space heater 9 which receives supply of power from said battery 7 and said battery 7 is charged at the time of putting out lights of said main heater 5, compaction of warm-up time can be aimed at and continuation **** without interruption can be performed.

[0018] Moreover, since the image formation equipment of this operation gestalt was equipped with the heating apparatus for anchorage devices according to claim 1, it can aim at compaction of warm-up time, and can perform continuation **** without interruption.

[0019] Drawing 2 shows a part of other operation gestalten of this invention. This operation gestalt is an operation gestalt which applied invention concerning claims 2 and 3 to image formation equipments, such as a copying machine which the toner image as an image is formed [copying machine] in the record paper, and fixes this toner image to the recording paper with an anchorage device, or a printer. With this operation gestalt, the output signal of a current sensor 13 is inputted into a battery charger 3 in the above-mentioned operation gestalt instead of the current sensor 13 as a current value detection means being formed, a current sensor 13 being inserted between a source power supply 1, the main heater control board 2, a battery charger 3, and the DC power supply unit 4, and the main heater control board 2 outputting a battery-charger driving signal to a battery charger 3 at the time of putting out lights of the main heater 5.

[0020] A current sensor 13 detects the current which flows into the main heater control board 2, a battery charger 3, and the DC power supply unit 4 from a source power supply 1. With [as shown in drawing 3 based on the output value of a current sensor 13 / the current which flows from a source power supply 1 to the main heater control board 2, a battery charger 3, and the DC power supply unit 4] constant value [more than], a battery charger 3 suspends charge of a battery 7. A battery 7 will be charged if the current which flows from a source power supply 1 to the main heater control board 2, a battery charger 3, and the DC power supply unit 4 is not more than constant value.

[0021] When such a configuration, then the current which flows into this operation gestalt from a source power supply 1 are detected and the current value is generous to the maximum consumed-electric-current value of this operation gestalt, a battery charger 3 is driven and a battery 7 can be charged.

[0022] In the heating apparatus for anchorage devices which has the heater which generates

heat when the heating apparatus for anchorage devices of this operation gestalt receives supply of power, and the heater driving means which supplies power to this heater The battery 7 which can charge the above-mentioned heater driving means, and the battery charger 3 for which electric power is supplied from a source power supply 1 and which charges said battery 7, The main heater 5 at which it has the current sensor 13 as a current value detection means to detect the current which flows from a source power supply 1, and said heater receives supply of power from a source power supply 1, Since it controls so that the current value as which it has the space heater 9 which receives supply of power from said battery 7, and said current value detection means 13 detected charge of said battery 7 does not exceed a predetermined value, compaction of warm-up time can be aimed at and continuation **** without interruption can be performed.

[0023] Moreover, since the image formation equipment of this operation gestalt was equipped with the heating apparatus for anchorage devices according to claim 2, it can aim at compaction of warm-up time, and can perform continuation **** without interruption.

[0024]

[Effect of the Invention] According to invention which relates to claim 1 as mentioned above, by the above-mentioned configuration, compaction of warm-up time can be aimed at and continuation **** without interruption can be performed. According to invention concerning claim 2, by the above-mentioned configuration, compaction of warm-up time can be aimed at and continuation **** without interruption can be performed. According to invention concerning claim 3, by the above-mentioned configuration, compaction of warm-up time can be aimed at and continuation **** without interruption can be performed.

[Translation done.]

JP, 2000-030799, A [DESCRIPTION OF DRAWINGS]

*** NOTICES ***

JPO and NCIPJ are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.

2. *** shows the word which can not be translated.

3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing a part of 1 operation gestalt of this invention.

[Drawing 2] It is the block diagram showing a part of other operation gestalten of this invention.

[Drawing 3] It is the flow chart which shows a part of flow of this operation gestalt of operation.

[Description of Notations]

- 1 Source Power Supply
- 2 The Main Heater Control Board
- 3 Battery Charger
- 4 DC Power Supply Unit
- 5 The Main Heater
- 6 Temperature Sensor for the Main Heaters
- 7 Battery
- 8 Space Heater Control Board
- 9 Space Heater
- 10 Temperature Sensor for Space Heaters
- 11 Extension Board
- 12 Control Board
- 13 Current Sensor

[Translation done.]

JP, 2000-090799, A [DRAWINGS]

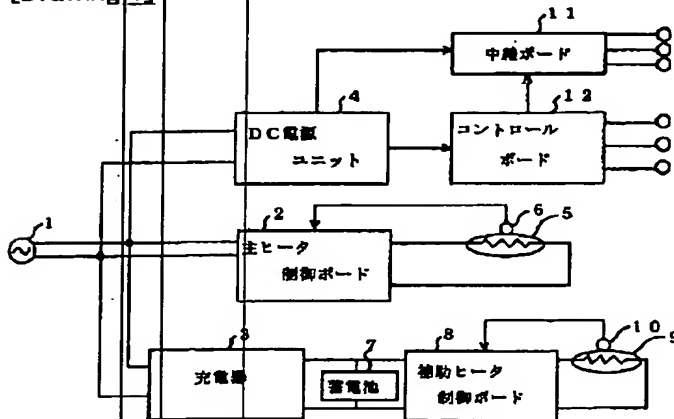
* NOTICES *

JP0 and NCIP are not responsible for any damages caused by the use of this translation.

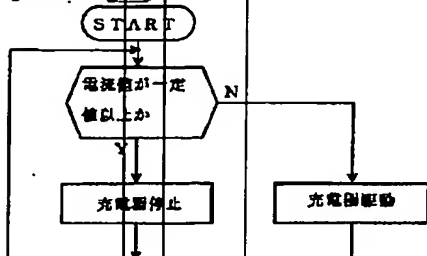
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DRAWINGS

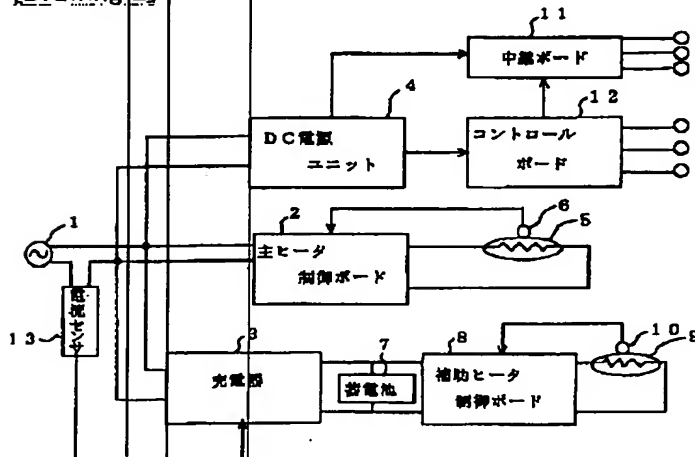
[Drawing 1]



[Drawing 3]



[Drawing 2]



2005年 7月 5日 11時29分

株式会社リコー新横浜第2知財部

NO. 4691

P. 17

JP,2000-036733,A [DRAWINGS]

2/2 ページ

[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公開特許公報 (A)

(11) 特許出願公開番号

特開2000-98799

(P2000-98799A)

(43) 公開日 平成12年4月7日(2000.4.7)

(51) Int.Cl. ⁷	識別記号	F I	テマコード [*] (参考)
G 0 3 G 15/20	1 0 9	G 0 3 G 15/20	1 0 9 2 H 0 2 7
21/00	3 9 8	21/00	3 9 8 2 H 0 3 3

審査請求 未請求 請求項の数 3 O L (全 5 頁)

(21) 出願番号 特願平10-271560

(22) 出願日 平成10年9月25日(1998.9.25)

(71) 出願人 000006747

株式会社リコー

東京都大田区中馬込1丁目3番6号

(72) 発明者 岩田 篤貴

東京都大田区中馬込1丁目3番6号・株式会社リコー内

(74) 代理人 100067873

弁理士 樺山 亨 (外1名)

Fターム(参考) 2H027 DA50 DE04 EA15 EC20 ED25

EE07 EF12 EF13 EG02 EG04

2H033 AA20 AA30 BA25 BA26 CA23

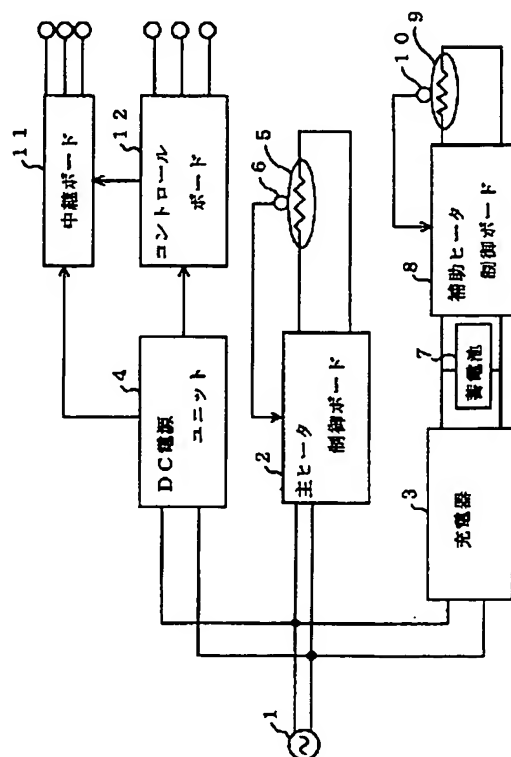
CA48

(54) 【発明の名称】 定着装置用加熱装置及び画像形成装置

(57) 【要約】

【課題】この発明は、ウォームアップ時間が十分に短くならず、定着装置の連続通紙が中断されることがあるという課題を解決しようとするものである。

【解決手段】この発明は、電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池7と、商用電源1から給電され蓄電池7を充電する充電器3とを備え、前記ヒータは商用電源1から電力の供給を受ける主ヒータ5と、蓄電池7から電力の供給を受ける補助ヒータ9とを有し、蓄電池7の充電を主ヒータ5の消灯時に行うものである。



【特許請求の範囲】

【請求項1】電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池と、商用電源から給電され前記蓄電池を充電する充電器とを備え、前記ヒータは商用電源から電力の供給を受ける主ヒータと、前記蓄電池から電力の供給を受ける補助ヒータとを有し、前記蓄電池の充電を前記主ヒータの消灯時に行うことを特徴とする定着装置用加熱装置。

【請求項2】電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池と、商用電源から給電され前記蓄電池を充電する充電器と、商用電源から流入する電流を検知する電流値検知手段とを備え、前記ヒータは商用電源から電力の供給を受ける主ヒータと、前記蓄電池から電力の供給を受ける補助ヒータとを有し、前記蓄電池の充電を前記電流値検知手段の検知した電流値が所定値を越えないように制御することを特徴とする定着装置用加熱装置。

【請求項3】請求項1又は2記載の定着装置用加熱装置を備えたことを特徴とする画像形成装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は定着装置用加熱装置及び画像形成装置に関する。

【0002】

【従来の技術】従来、定着装置用加熱装置は、主にプリンタや複写機に使われている。このようなプリンタや複写機といった画像形成装置においては、通常、最大消費電流や最大消費電力が決定されている。このため、この画像形成装置では、定着装置用加熱装置におけるヒータの消費電力に基づきウォームアップ時間が決定される。また、この画像形成装置では、定着装置の連続通紙等で著しく定着装置の熱が紙に奪われ、定着装置の温度を所定の温度に保持できなくなった場合等は連続通紙を一時的に中断し、定着装置を所定の温度まで加熱してから再度連続通紙を再開するというような制御を行う制御手段を採用していた。

【0003】また、特開平3-36579号公報には、蓄電池を、充電器と充電回路を形成するような接続形態、またはヒータ及び直流電源とともに放電回路を形成する接続形態のいずれかに切換可能に配設することにより、ウォームアップ時間の短縮を図るようにした定着装置用加熱装置が記載されている。

【0004】

【発明が解決しようとする課題】上記従来の画像形成装置では、ウォームアップ時間が十分に短くならず、定着装置の連続通紙が中断されることがあるが、より便利に

使用するためには、ウォームアップ時間の短縮や中断無しの連続通紙が要望されている。

【0005】本発明は、上記要望を満たすためになされたもので、ウォームアップ時間の短縮を図ることができて中断無しの連続通紙を行うことができる定着装置用加熱装置及び画像形成装置を提供することを目的とする。

【0006】

【課題を解決するための手段】上記目的を達成するため、請求項1に係る発明は、電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池と、商用電源から給電され前記蓄電池を充電する充電器とを備え、前記ヒータは商用電源から電力の供給を受ける主ヒータと、前記蓄電池から電力の供給を受ける補助ヒータとを有し、前記蓄電池の充電を前記主ヒータの消灯時に行うものである。

【0007】請求項2に係る発明は、電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池と、商用電源から給電され前記蓄電池を充電する充電器と、商用電源から流入する電流を検知する電流値検知手段とを備え、前記ヒータは商用電源から電力の供給を受ける主ヒータと、前記蓄電池から電力の供給を受ける補助ヒータとを有し、前記蓄電池の充電を前記電流値検知手段の検知した電流値が所定値を越えないように制御するものである。

【0008】請求項3に係る発明は、請求項1又は2記載の定着装置用加熱装置を備えたものである。

【0009】

【発明の実施の形態】図1は本発明の一実施形態の一部を示す。この実施形態は、記録紙上に画像としてのトナー像を形成して該トナー像を定着装置で記録紙に定着させる複写機あるいはプリンタ等の画像形成装置に請求項1、3に係る発明を適用した実施形態である。

【0010】この実施形態においては、商用電源1に主ヒータ制御手段としての主ヒータ制御ボード2と充電器3とDC電源ユニット4とが接続され、主ヒータ制御ボード2には主ヒータ5と主ヒータ用温度センサ6が接続されている。充電器3には蓄電池7と補助ヒータ制御手段としての補助ヒータ制御ボード8が並列に接続され、補助ヒータ制御ボード8には補助ヒータ9と補助ヒータ用温度センサ10が接続されている。

【0011】DC電源ユニット4には中継ボード11や制御手段としてのコントロールボード12が接続され、中継ボード11及びコントロールボード12にはこの画像形成装置におけるモータやクラッチ、ソレノイド、各種センサ等が接続されている。これらのモータやクラッチ、ソレノイドからなるアクチュエータや各種センサは

コントロールボード12からの制御信号によって制御される。このように、本実施形態は、主ヒータ5及び補助ヒータ9からなるヒータに電力を供給して発熱させるヒータ駆動手段は、充電可能な蓄電池7と、商用電源1から給電されて蓄電池7を充電する充電器3を備えている。

【0012】DC電源ユニット4は商用電源1から供給される交流電圧を所定の直流電圧に変換して中継ボード11及びコントロールボード12に印加する。主ヒータ5は商用電源1から主ヒータ制御ボード2を介して電力が供給されることにより発熱し、定着装置が例えば定着ローラを有する熱ローラ定着装置である場合には主ヒータ5が定着ローラを加熱する。主ヒータ用温度センサ6は主ヒータ5による加熱温度、つまり、定着ローラの表面温度（定着温度）を検知する。主ヒータ制御ボード2は、主ヒータ用温度センサ6からの温度検知信号に基づき定着ローラの表面温度（定着温度）が設定温度になるように商用電源1から主ヒータ5への供給電力を制御して主ヒータ5をオン／オフさせる。

【0013】主ヒータ制御ボード2は、主ヒータ5の消灯時に充電器駆動信号を充電器3に出力するように構成されている。この実施形態は、主ヒータ5とDC電源ユニット4とがフルパワーで駆動される時に、この実施形態の消費電流あるいは消費電力が最大消費電流あるいは最大消費電力となるように設計されている。従って、主ヒータ5の消灯時には、本実施形態の消費電流あるいは消費電力は最大消費電流あるいは最大消費電力まで余裕があるので、主ヒータ制御ボード2が主ヒータ5の消灯時に充電器駆動信号を充電器3に出力し、充電器3は主ヒータ制御ボード2から充電器駆動信号が入力されることにより蓄電池7を充電する。

【0014】補助ヒータ9は蓄電池7から補助ヒータ制御ボード8を介して電力が供給されることにより発熱し、補助ヒータ9が定着ローラを加熱する。補助ヒータ用温度センサ10は補助ヒータ9による定着ローラの加熱温度（補助ヒータ9及び主ヒータ5で加熱される定着ローラの温度）を検知する。

【0015】補助ヒータ制御ボード8は、例えば主ヒータ5が一定時間以上点灯しっぱなしの状態であるか否かを補助ヒータ用温度センサ10からの温度検知信号若しくは主ヒータ制御ボード2からの主ヒータオン／オフ信号に基づき判断することで、補助ヒータ9を点灯させるか否かを判断して主ヒータ5が一定時間以上点灯しっぱなしの状態である時に補助ヒータ9を点灯させ、あるいは、主ヒータ用温度センサ6の出力値が目標値から温度が低い方向に一定値以上離れているか否かを判断することで補助ヒータ9を点灯させるか否かを判断して主ヒータ用温度センサ6の出力値が目標値から温度が低い方向に一定値以上離れている時に補助ヒータ9を点灯させる。

【0016】このような構成にすれば、この実施形態において大量に熱を必要とするウォームアップ時や定着装置の連続通紙時等に蓄電池7に蓄えられた電力を補助ヒータ9に供給することができ、さらに、この時に本実施形態の消費電流あるいは消費電力が最大消費電流あるいは最大消費電力を超えることはない。

【0017】この実施形態の定着装置用加熱装置は、電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電可能な蓄電池7と、商用電源1から給電され前記蓄電池7を充電する充電器3とを備え、前記ヒータは商用電源1から電力の供給を受ける主ヒータ5と、前記蓄電池7から電力の供給を受ける補助ヒータ9とを有し、前記蓄電池7の充電を前記主ヒータ5の消灯時に行うので、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。

【0018】また、この実施形態の画像形成装置は、請求項1記載の定着装置用加熱装置を備えたので、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。

【0019】図2は本発明の他の実施形態の一部を示す。この実施形態は、記録紙上に画像としてのトナー像を形成して該トナー像を定着装置で記録紙に定着させる複写機あるいはプリンタ等の画像形成装置に請求項2、3に係る発明を適用した実施形態である。この実施形態では、上記実施形態において、電流値検知手段としての電流センサ13が設けられて商用電源1と主ヒータ制御ボード2、充電器3及びDC電源ユニット4との間に電流センサ13が挿入され、主ヒータ制御ボード2が主ヒータ5の消灯時に充電器駆動信号を充電器3に出力する代りに、電流センサ13の出力信号が充電器3に入力される。

【0020】電流センサ13は商用電源1から主ヒータ制御ボード2、充電器3及びDC電源ユニット4に流入する電流を検知し、充電器3は電流センサ13の出力値に基づき図3に示すように商用電源1から主ヒータ制御ボード2、充電器3及びDC電源ユニット4に流れる電流が一定値以上であれば蓄電池7の充電を停止し、商用電源1から主ヒータ制御ボード2、充電器3及びDC電源ユニット4に流れる電流が一定値以上でなければ蓄電池7を充電する。

【0021】このような構成とすれば、商用電源1から本実施形態に流入する電流を検知してその電流値が本実施形態の最大消費電流値に対して余裕がある場合に充電器3を駆動して蓄電池7を充電することができる。

【0022】この実施形態の定着装置用加熱装置は、電力の供給を受けることによって発熱するヒータと、このヒータに電力を供給するヒータ駆動手段とを有する定着装置用加熱装置において、上記ヒータ駆動手段は、充電

可能な蓄電池7と、商用電源1から給電され前記蓄電池7を充電する充電器3と、商用電源1から流入する電流を検知する電流値検知手段としての電流センサ13とを備え、前記ヒータは商用電源1から電力の供給を受ける主ヒータ5と、前記蓄電池7から電力の供給を受ける補助ヒータ9とを有し、前記蓄電池7の充電を前記電流値検知手段13の検知した電流値が所定値を越えないように制御するので、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。

【0023】また、この実施形態の画像形成装置は、請求項2記載の定着装置用加熱装置を備えたので、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。

【0024】

【発明の効果】以上のように請求項1に係る発明によれば、上記構成により、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。請求項2に係る発明によれば、上記構成により、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。請求項3に係る発明によれば、上記構成により、ウォームアップ時間の短縮を図ることができ、中断無しの連続通紙を行うことができる。

【図面の簡単な説明】

【図1】本発明の一実施形態の一部を示すブロック図である。

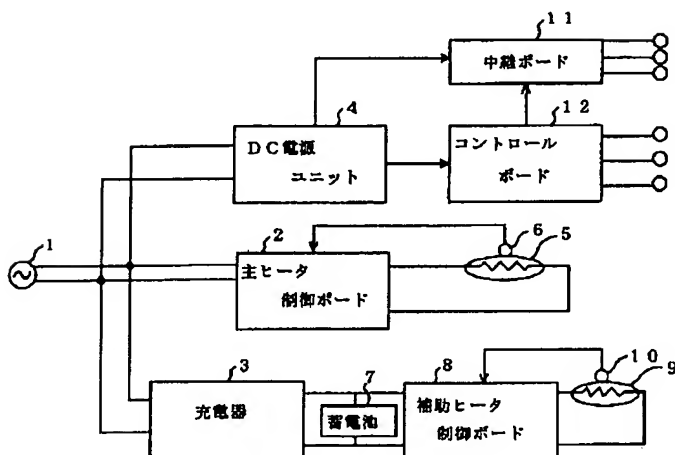
【図2】本発明の他の実施形態の一部を示すブロック図である。

【図3】同実施形態の動作フローの一部を示すフローチャートである。

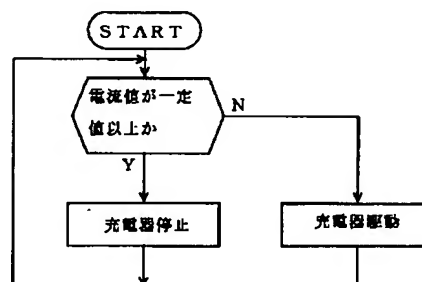
【符号の説明】

- | | |
|----|-------------|
| 1 | 商用電源 |
| 2 | 主ヒータ制御ボード |
| 3 | 充電器 |
| 4 | DC電源ユニット |
| 5 | 主ヒータ |
| 6 | 主ヒータ用温度センサ |
| 7 | 蓄電池 |
| 8 | 補助ヒータ制御ボード |
| 9 | 補助ヒータ |
| 10 | 補助ヒータ用温度センサ |
| 11 | 中継ボード |
| 12 | コントロールボード |
| 13 | 電流センサ |

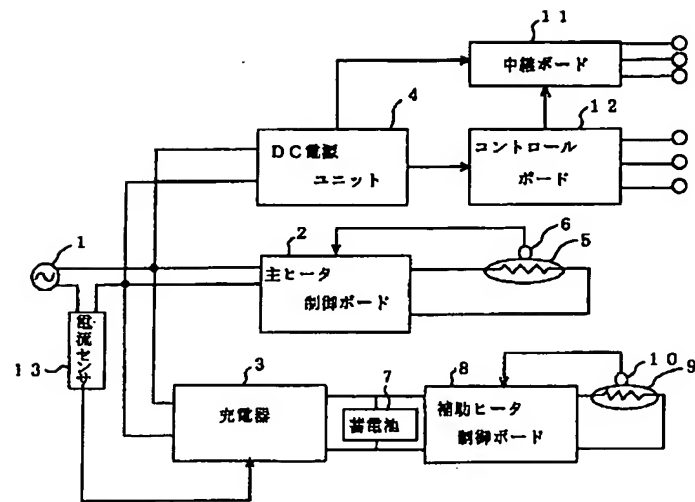
【図1】



【図3】



【図2】



**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☒ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.